Determinants of AFTA Members' Trade Flows and Potential for Trade Diversion

By

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Executive Summary

One of the most important RTA in Asia and the Pacific is the Association of South-East Asian Nations (ASEAN) Free Trade Area, also referred to as AFTA, which was aimed at eliminating tariff barriers among member countries through the Agreement on the Common Effective Preferential Tariff (CEPT) scheme. It applied to all products from ASEAN member countries defined as those that had at least 40% ASEAN content. More than 99 percent of the products in the CEPT Inclusion List (IL) of ASEAN-6, comprising Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand, have now been brought down to the 0-5 percent tariff range. ASEAN new members including Cambodia, Lao PDR, Myanmar and Vietnam have also implemented their commitment on the CEPT scheme with 80 percent of their products having been moved into their CEPT Inclusion List.

The objective of this paper, therefore, is to investigate the determinants of trade flows of AFTA members, including the impact of creation of AFTA on its intra-regional and extra-regional trade flow by comparing trade patterns of AFTA countries with AFTA members and non-members.

We developed an augmented gravity equation to estimate the impact, including standard gravity variables and two indexes, namely the 'complementarity index' and the 'similarity index' to capture the effect of complementarity and similarity export structure between the exporting countries and the importing countries. We also include dummy variables represent the effects of regional trade arrangement. And to estimate the impact of AFTA whether it causes trade creation or trade diversion, we include trade creation dummy and trade diversion dummy.

We found the standard gravity variables –i.e. both reporting and partner country GDP, distance, common language, common border and whether the partner country is landlocked or not- have significant effects on the bilateral exports of ASEAN members. This result is consistent with many previous studies which estimate the determinants of bilateral trade between countries using gravity equation.

The reduction of tariff was also found to have a significant effect in increasing the bilateral exports of ASEAN members. Therefore, effective implementation of the AFTA CEPT scheme to reduce or eliminate tariff barrier may be expected to boost the trade of ASEAN members. However, a greater number of products may need to be put in the CEPT inclusion list.

The econometric analysis also suggested that AFTA may be causing some trade diversion and shifting trade from countries outside the bloc to possibly less efficient countries inside the bloc. It also confirmed that the more complementary the supply and demand of countries, the more they will trade. Since the export and import profiles of ASEAN members have become more complementary to each other over time, the potential for intra-regional trade is great for ASEAN members. Finally, we also found that the similar structure of export between ASEAN members has a positive effect on its bilateral exports. Thus, intra-industry trade may be expected to increase the intra-regional trade among ASEAN members and to support the further economic integration of the ASEAN region.

The recent emergence of regional trade agreements (RTAs) in Asia and the Pacific[1] has increased the need for a thorough examination of the impact of RTAs on trade, and particularly on intra-regional trade among its members.

One of the most important RTA in Asia and the Pacific is the Association of South-East Asian Nations (ASEAN) Free Trade Area, also referred to as AFTA. AFTA was established in 1992 and currently has a membership of 10 countries. It is expected to become a full free trade area by the year 2008. This should result an increase in intra-regional trade of AFTA members. While Elliot and Ikemoto (2004) found that intra-regional trade in ASEAN had strengthened in the 1990s, they did not attribute this strengthening to the implementation of AFTA.[2]

The objective of this paper, therefore, is to investigate the determinants of trade flows of AFTA members, including the impact of creation of AFTA on its intra-regional and extra-regional trade flow by comparing trade patterns of AFTA countries with AFTA members and non-members. By doing so, we hope to be able to reveal whether AFTA (i) increases trade among members; (ii) adversely impact non-member countries; and (iii) contributes to or undermines further liberalization of AFTA members. This analysis is limited to ASEAN 5 (Indonesia, Malaysia, Singapore, Philippines and Thailand) and several non-ASEAN member countries to assess the AFTA membership effects. Using several indicators, namely 'complementarity index' and 'similarity index', this study examines whether bilateral trade between economies has been complementary in nature or, on the contrary, similar and thus increased competition so that each countries need to increase their competitiveness.

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[1] There are 10 regional agreements in Asia and the Pacific since 1990 according to ESCAP database: http://www.unescap.org/tid/pta%5Fapp/default.aspx

[2] Using gravity equation, Elliot and Ikemoto (2004) estimate whether Asian Economic crisis was a help or hindrance to ASEAN intra-regional trade. One of the finding is that trade flows were not significantly affected in the years immediately following the signing of the AFTA agreement in 1993. Nonetheless, when the gravity equation was re-estimated for intra-ASEAN trade only, there is some evidence of a positive AFTA effect that, although limited at first, gradually increased.

I.   An Overview on AFTA

ASEAN was established on August 8th 1967 in Bangkok by its five original member countries, namely, Indonesia, Malaysia, Singapore, Philippines and Thailand[3]. When ASEAN was established, trade among member countries was insignificant. Estimates between 1967 and the early 1970s showed that the share of intra-ASEAN trade was between 12-15% of total trade of member countries. To support economic cooperation between member countries, the ASEAN Free Trade Area (AFTA) was established in 1992. This agreement was aimed at eliminating tariff barriers among member countries and creating regional market of 500 million people. The Agreement on the Common Effective Preferential Tariff (CEPT) scheme required that tariff levied on a wide range of products traded within the region be reduced to no more than five percent. It applied to all products from ASEAN member countries defined as those that had at least 40% ASEAN content. More than 99 percent of the products in the CEPT Inclusion List (IL) of ASEAN-6, comprising Brunei Darussalam, Indonesia, Malaysia, the Philippines, Singapore and Thailand, have now been brought down to the 0-5 percent tariff range. ASEAN new members including Cambodia, Lao PDR, Myanmar and Vietnam have also implemented their commitment on the CEPT scheme with 80 percent of their products having been moved into their CEPT Inclusion List.

Table 1. Average CEPT Rates, By Country, 1993-2003

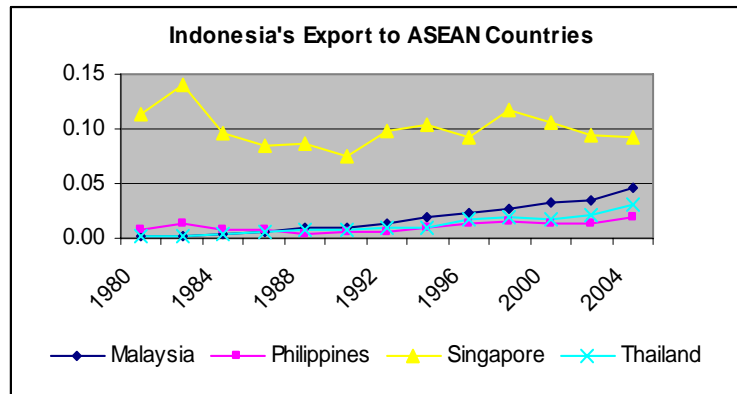| Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Brunei D.	3.78	2.64	2.54	2.02	1.61	1.37	1.55	1.26	1.17	0.96	1.04
Indonesia	17.27	17.27	15.22	10.39	8.53	7.06	5.36	4.76	4.27	3.69	2.17
Malaysia	10.79	10	9.21	4.56	4.12	3.46	3.2	3.32	2.71	2.62	1.95
Philippine	12.45	11.37	10.45	9.55	9.22	7.22	7.34	5.18	4.48	4.13	3.82
Singapore	0.01	0.01	0.01	0.01	0	0	0	0	0	0	0
Thailand	19.85	19.84	18.16	14.21	12.91	10.24	9.58	6.12	5.67	4.97	4.63
ASEAN6	**11.44**	**10.97**	**10**	**7.15**	**6.38**	**5.22**	**4.79**	**3.64**	**3.22**	**2.89**	**2.39**
Cambodia								10.39	10.39	8.89	7.94
Lao PDR						5	7.54	7.07	7.08	6.72	5.86
Myanmar						2.39	4.45	4.43	4.57	4.72	4.61
Vietnam				0.92	4.59	3.95	7.11	7.25	6.75	6.92	6.43
ASEAN10				**7.03**	**6.32**	**4.91**	**5.01**	**4.43**	**4.11**	**3.84**	**3.33**

Source: ASEAN Secretariat

After the AFTA was established, total trade among ASEAN countries has grown from US$ 44.2 billion in 1993 to US$ 95.2 billion in 2000, showing an annual increase of 11.6 percent. The intra-ASEAN exports made up about 23.3 percent of total ASEAN exports to the world. Before the financial and economic crisis struck in mid-1997, intra-ASEAN exports had been increasing by 29.6 percent. This is significantly higher than the rate of increase of total ASEAN exports to the world, which grew at 18.8 percent during the same period.

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[3] Expansions on the membership were Brunei in 1984, Vietnam in 1995, Myanmar and Laos in 1997 and Cambodia in 1999.

The bilateral trade between member countries also shows that there's an increase in the export both in the absolute number and as a share of total trade to the world. Indonesia and Philippine experienced an increase patterns on trade to the other member countries. Prior to the establishment of AFTA, Indonesia's exports to the ASEAN countries amounted only to 10 percent of its total exports while Philippines exports to ASEAN amounted only to 7 percent of its total exports After AFTA was established, Indonesia increased its export to ASEAN5 countries to 20 percent and Philippines increased its exports to 13 percent, in dollar value almost three times higher compared to pre AFTA period.
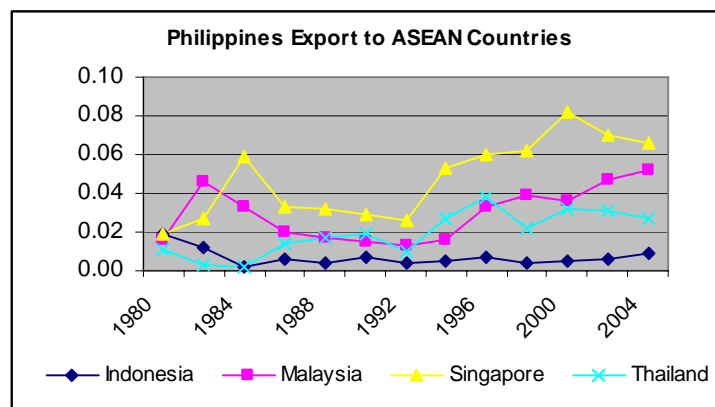
Kien and Hazimoto (2005)[4] found that even if there's an increase on the bilateral trade between member countries, AFTA has not given rise to export trade diversion. One plausible explanation for this is that export-oriented strategies have been an engine of economic growth for these countries for long time. Moreover, characteristics of production and consumption in all member countries may have led them to persistently aim for non-members as their export destinations.

Figure 1. Trend of Indonesia's Export to ASEAN Countries 1980-2004

Source: UN COMTRADE accessed through WITS

Figure 2. Trend of Philippines Export to ASEAN Countries 1980-2004

Source: UN COMTRADE accessed through WITS

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[4] Using gravity equation, the export and import FTA variables is a unity if only an import or export country belongs to FTA. The result showed a positive sign for both variables.

On the import side, Kien and Hazimoto (2005) found that AFTA members have not transferred their import transaction from non-member trading partners to member ones. It means that there has been no import trade diversion over the period of 10 years since AFTA was established[5]. One possible interpretation is that the dynamic network of domestic production together with foreign investment projects in AFTA countries have caused these countries to prefer importing from non-members outside the region.

However, Damuri, Atje and Gaduh (2006) found that, in 2002, the weighted preferential tariffs (through CEPT scheme) were higher than MFN tariffs. This suggests that the import values of products whose CEPT tariffs are lower than MFN tariffs are not significant relative to total imports, which somewhat substantiate findings that CEPT tariffs have been underutilized. Hence, by way of tariff reduction, AFTA was not particularly successful in lowering tariff rates preferentially.

In this paper, the authors develop and estimate a gravity model to find further evidence of the impact of AFTA and the CEPT scheme on bilateral trade flows within and outside the region.

II. A Literature Review on Gravity Model

Gravity model has been broadly used in explaining the determinants of trade flows of a country and provides accepted framework and a useful multivariate approach for assessing the impact of regional trade. It is a model of trade flows based on the analogy with the law if gravity in physics. Trade between two countries is positively related to their size, and inversely related to the distance between them. Since then, the gravity model has been widely used and increasingly improved in empirical studies of international trade. For example, a population variable was incorporated to show a negative effect of it on trade flows since a larger population means a larger domestic market and a more diversified range of output, and less dependence on international specialization would exist (Oguledo &MacPhee, 1994 and Endoh 1999, 2000). A number of explanatory variables have been added to initial gravity equation to improve explanatory power of the model to analyze various bilateral trade policy issues.

Rose (2002) used gravity model to estimate the effect on international trade of multilateral agreements like World Trade Organization (WTO), Generalized Agreements on Tariffs and Trade (GATT) and the Generalized System of Preferences (GSP). He used a standard gravity model of bilateral trade and panel data set covering over fifty years and 175 countries. He found out that WTO/GATT doesn't have effect on trade of its member, while the GSP does have strong effect and approximately doubling the trade. Another finding based on the result of the gravity model, is that countries that are farther apart will trade less, while economically larger and richer countries will trade more, measured by the GDP variable.

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[5] Kien and Hazimoto used data covering 39 countries of which 26 are members of four FTAs, namely, EU, AFTA, NAFTA and MERCOSUR for the overall 15-years period, 1988-2002. AFTA took place in 1992.

The standard way in assessing the impact of PTAs is to add PTA-specific binary dummy variables in the augmented gravity model to capture effects not captured through normal bilateral trade determinants. Although since Viner (1950) it is known that the impact of any trade agreement is a combination of trade creation and diversion effects, gravity modelers rarely try to decompose these effects (Greenaway and Milner, 2002). Some unsuccessfully tried to use dummy variables for members of trade blocs and for non-members, with the expectation of negative coefficients for the latter. However, this technique has been separately criticized by Polak (1996) and Matyas (1997) because of direct use of bloc dummy variables in the gravity equation, which, they conclude, leads to incorrect inferences. In fact, Matyas (1997) showed that such gravity models used for this purpose were actually misspecified from the econometric point of view due to presence of unnecessary constraints put on the parameters of the model. They suggested a model with country fixed effects, which are to be analyzed to find the impact of liberalization agreements.

Study adding PTA-specific dummy variables to capture trade creation and trade diversion on PTAs was delivered by Haveman and Hummels (1996). They tried to assess the effects of PTAs on the aggregate and bilateral trading patterns of member countries by adding two dummy variables to their gravity model to capture the intra-bloc and extra-bloc effects of PTAs. The first dummy variable takes a value of one when only one member of the country pair is a member of regional trading bloc. The second dummy variable takes the value of one when both members of the country pair belong to the regional trading blocs. Trade creation happens when bilateral trade between countries in the same region exceeds the normal volume of trade, but doesn't change the trade with outside the bloc – first dummy will be zero, and second dummy will be positive. Trade creation causes high intra-bloc trade and lowers the extra-bloc trade of its members –first dummy will be negative and second dummy will be zero.

Another study by Krueger (1999) using the gravity equation to investigate the trade creation and trade diversion under North America Free Trade Agreement (NAFTA) showed that NAFTA was causing trade creation and not trade diversion. It represented by the increase of share on Mexico trade with the U.S but the empirical result seems to indicate that those commodity in which Mexican exports to the U.S grew most rapidly were also those categories in which it grew most rapidly with the rest of the world.

To estimate the effect of AFTA among its member, we build on a standard gravity model, specified as follows: